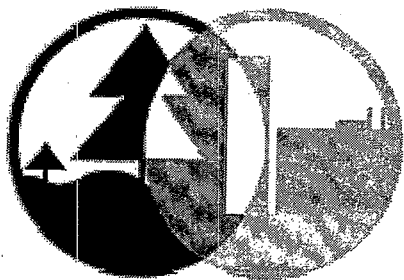




# Non-Aqueous Phase Liquid (NAPL) Cleanup Alliance



**RTDF**

**Remediation Technologies  
Development Forum**

## **Current RTDF Action Teams**

**Bioremediation Consortium**

**INERT Soil-Metals Action  
Team**

**NAPL Cleanup Alliance**

**Permeable Reactive  
Barriers Action Team**

**Phytoremediation of  
Organics Action Team**

**Sediments Remediation  
Action Team**

### ***What Is the NAPL Cleanup Alliance?***

The Non-Aqueous Phase Liquid (NAPL) Cleanup Alliance, established in 2001, is one of the six Action Teams under the Remediation Technologies Development Forum (RTDF). The U.S. Environmental Protection Agency (EPA) created the RTDF in 1992 to foster collaboration between the public and private sectors in developing innovative solutions to mutual hazardous waste problems. The NAPL Cleanup Alliance includes representatives from the petroleum industry, federal and state government, and academia who share an interest in pursuing aggressive technologies for removing large-scale non-aqueous phase liquid (NAPL) contamination.

### ***What Is the Problem of Concern?***

Operations at private industrial and government facilities have released petroleum hydrocarbons into the environment and contaminated soils and groundwater at a number of these sites. These facilities include petroleum refineries, shipping terminals, pipelines, and airports. Traditionally, remediation of petroleum hydrocarbon contamination at these sites has focused on 1) installation of pump-and-treat systems to hydraulically control and treat groundwater and remove accessible product, 2) installation of soil vapor-extraction systems to remove volatile organic compounds in the vadose zone, and 3) installation of impermeable barriers to prevent off-site migration. The experience of the last 15 years indicates, however, that cleanup of these sites will take many years with existing approaches and technologies without offering significant risk reduction benefits.

### ***What Is the Alliance's Mission?***

The Alliance's mission is to develop an improved scientific and technical approach to remediation of groundwater and soil contaminated by petroleum hydrocarbons at private industrial and government facilities. The Alliance is investigating, testing, and evaluating technological and process alternatives that are not only technically feasible and efficient, but also more effective in providing appreciable risk reduction.

## *What Are the Alliance's Goals?*

- Work collaboratively to identify technically practicable, cost-effective solutions to petroleum hydrocarbon contamination problems at groundwater and soil sites.
- Create and test an improved decision-making framework or strategy, built on scientific principles and the utilization of cost-effective and appropriate technologies for achieving specific cleanup goals acceptable to regulatory agencies and the public interest.
- Develop an approach for cleaning up and closing large NAPL sites.
- Develop a better understanding of the cost and effectiveness of existing, aggressive NAPL removal technologies.
- Encourage cooperation among its members through sharing technical information and lessons learned in the field.
- Develop technical training on NAPL characterization, mobility, and removal.

### *What Is the Role of Alliance Members?*


The 15 public and private organizations who make up the “core team” of the NAPL Cleanup Alliance signed a Memorandum of Understanding (MOU) in 2001 to indicate their commitment to the mission and goals of the Alliance. Under the MOU, “core team” members provide joint management and coordination of Alliance activities and projects. On a project-by-project basis, “core team” members also contribute project sites for use in testing specific alternatives, expertise and experience unique to their respective organizations, personnel, equipment, laboratory facilities, and funding needed to achieve Alliance goals.

## *What Has the NAPL Cleanup Alliance Accomplished?*

1. The Alliance launched a World Wide Web site in 2001 that is accessible to the public through the RTDF site at [www.rtdf.org](http://www.rtdf.org). The web site describes the Alliance,

names the Alliance member-organizations, provides contact information for Alliance co-chairs, provides electronic links to other useful Internet sites, and provides access to summaries of conference calls and meetings of Alliance members, including historical information from the Alliance's formative meetings in 2000.

2. A critical component of the Alliance's activities will involve the evaluation of innovative technologies that can contribute significantly to improving remediation of large-scale NAPL contamination. It is anticipated that at least one or two pilots will be developed for each of the petroleum companies that are signatories to the MOU. Presently, the Alliance is working on two pilot projects within EPA Region 8: Conoco/Ultramar Diamond Shamrock Refineries in Denver, CO, and the former Texaco Refinery in Casper, WY. Both of these RTDF NAPL Alliance pilots have been selected as National RCRA Showcase Pilot Projects. The first pilot at the Denver refineries involves employing a water flood for removal of free-phase hydrocarbons in a shallow unconsolidated aquifer. The second pilot at the Casper site includes a hydrocarbon mobility study employing innovative field screening techniques, such as the U.S. Navy Site Characterization and Analysis Penetrometer System (SCAPS). The mobility study will be followed by selection and deployment of one or more innovative remediation systems.
3. The Alliance formed another Working Group late in 2001 to develop a decision-making framework that



## Non-Aqueous Phase Liquid (NAPL) Cleanup Alliance

Latest Developments

Member Directory

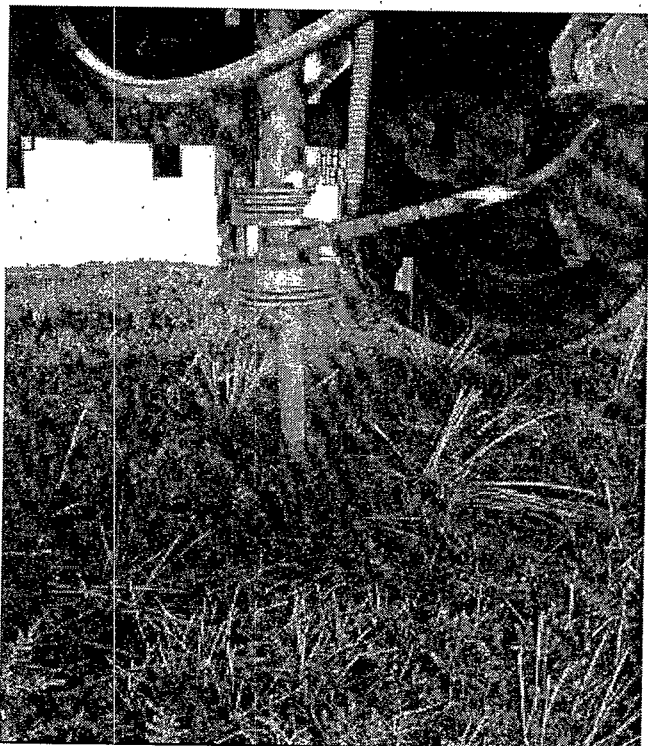
Public Information

Public Meetings & Workshops

Advisory Panel

**www.rtdf.org/public/napl**

I	RTDF Home
II	Executive Summary
III	Site Reports
IV	Site Assessment & Remedial Action
V	RTDF Non-Remedial Options
VI	Regulatory Options & Approval (MADCE) & Agency Assistance
VII	Public Meeting Schedule & Public Access to NAPL Cleanup
VIII	Public Information & Public Meetings
IX	Public Information & Public Meetings



*A Laser Fluorescence (LIF) petroleum sensor was pushed into the ground by the truck-mounted SCAPS at the Casper project site. This optical screening method provides a nearly continuous profile of contaminant distribution as the probe moves into the ground.*

describes how to address large-scale sites that have significant NAPL issues resulting in relatively large and prolonged expenditures. The Working Group is producing an annotated draft outline of this NAPL Management Plan for external review. Discussion of the draft outline with selected state and federal regulators will be a focal point of the Alliance's Winter 2003 meeting.

4. The Alliance established an Information Working Group to review information on completed NAPL cleanup projects in the United States and Europe in order to identify data that may be useful in Alliance projects. To facilitate its work, the Working Group is cooperating with an ongoing project for the Ground-Water Remediation Technologies Analysis Center (GWRTAC), sponsored by the U.S. Department of Energy. The result of this cooperation is a searchable database to be available in December 2002 via the Alliance web site ([www.rtdf.org/public/napl/](http://www.rtdf.org/public/napl/)).

## *Who Are the NAPL Alliance's Members?*



### **Industry**

BP Amoco, Inc.  
ChevronTexaco Research and Technology Company  
ConocoPhillips  
Equiva Services, LLC  
ExxonMobil Refining and Supply Company  
Retec  
Sierra Environmental Services, Inc.  
TriHydro Corporation  
American Petroleum Institute



### **Government**

State of Wyoming Department of Environmental Quality  
U.S. Defense Energy Support Center  
U.S. Environmental Protection Agency/ Region 8  
U.S. Environmental Protection Agency/  
Technology Innovation Office  
U.S. Naval Facilities Engineering Service Center

### **Associates**

Individuals and organizations with specific technical expertise augment the Alliance Core Team on a project-by-project basis. Currently, they include: the U.S. EPA/Kerr Research Laboratory, additional EPA Regions and States.



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Environmental Protection Agency  
National Service Center for  
Environmental Publications  
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## Would You Like More Information?

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